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ABSTRACT

At the University of New Mexico, stakeholders from the Computer and Information Resources and Technology (CIRT) department, Financial Systems, the Health Sciences Center, and the General Libraries, were involved in deciding on the goals of a project to replace Telnet with a suite of network middleware and productivity software on campus computer systems. Staff from each area assisted in selecting and testing the software. The primary goal was distribution of network productivity software, the initial focus being on tools used daily by most campus network users. CIRT staff, student employees, and staff from collaborating departments joined the team with these responsibilities: select desktop TCP/IP clients, review documentation, assess network performance, design automated installation, assign IP numbers, handle software licensing and distribution, prefigure the TCP/IP client software, and plan a configuration for the Campus Computer Labs. Topics include: (1) service and productivity gains; (2) selection issues; (3) the significant time and ease gains of automated installation; (4) distribution options; (5) the impact of licensing issues on productivity gains; (6) site-specific implementation; (7) testing and integrating supporting software; (8) handling Multipurpose Internet Mail Extension (MIME) attachments and compressed files; and (9) adding value for users and gauging computer center impact. A description of and manual for Mirada, an integrated collection of Internet tools created to simplify and streamline the use of network services is included. (Author/SWC)

ED 398 922

LEVERAGING CAMPUS NETWORK CAPABILITIES AT THE DESKTOP

Helping Users Get Real Work Done

or

How Windows Sockets & MacTCP Changed My Life

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BACKGROUND

By 1994, UNM's fiber optic network backbone reached 110+ buildings. Building LANs were being constructed rapidly. Computing center staff were installing network software (Clarkson Telnet and network middleware) nearly 200 times a month. Unix system accounts more than doubled to 17,000 by early 1995. Information Superhighway publicity and user pressure for Windows and Macintosh WWW clients such as Mosaic and Netscape reached a crescendo.

UNM was ripe for a move from the Clarkson Telnet VT terminal emulator to TCP/IP clients running on desktop machines using a GUI interface for a variety of reasons:

- Computing center staff could not continue to install Telnet by hand, given the sheer number of new nodes being added to our campus network.
- A significant number of Macs and DOS/Windows PCs powerful enough to run multiple GUI network applications had appeared on desks throughout the university.
- System wide services and tools were in place that could benefit all users, if desktop-based service clients and supporting applications could be deployed.

COLLABORATION

Through a process organized by CIRT(1), stakeholders including computing managers and staff from Financial Systems, the Health Sciences Center, the General Libraries, and CIRT were involved in deciding on the goals of a project to replace Telnet with a suite of network middleware and productivity software. Staff from each area assisted in selecting and testing software for both platforms, Windows PCs and Macintoshes.

CORE NETWORK APPLICATIONS

Distribution of network productivity software was selected as the primary goal of the effort. Elements to be included were:

- A multiplexed TCP/IP stack (e.g. Winsock or MacTCP)
- An e-mail client
- A VTxxx terminal emulator, with minimum VT102 support and competent key mapping capability. Though some departments need VT420 emulation, this may not be provided initially.
- A TN3270 terminal emulator
- An FTP client
- A USENET newsreader
- An LPR spooler

Additional clients, such as gopher and WWW browsers were not viewed as critical components at the outset. The focus was on easier access to the tools used daily by most campus network users.

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CIRT staff and student employees, and staff from collaborating departments joined the project team with these responsibilities:

• Selecting Desktop TCP/IP Clients: The first order of business was finding a subset of all the rapidly proliferating products appropriate to evaluate and making tentative selections, contingent on funding, of course. Our initial review did not make any limiting assumptions: We looked at commercial suites, stand-alone commercial products and at the shareware and freeware products as well.
• Documentation Review: Online and print documentation and plan for additions, including modifications to site-specific documentation and to installation instructions. CIRT's Publications Group already produces an Internet 'manual' to assist the university community in its use of the major Internet services and to support CIRT staff who teach a non-credit introductory Internet class. This and a large number of shorter publications are being revised to include information about the use of desktop clients.
• Network Performance: Testing network and dial-up PPP performance of the client software. Staff from CIRT's Networking, Systems and Information Resource groups are participating in tests to confirm that the desktop TCP/IP clients communicate acceptably with various servers across our network. Additional work to determine the best performance that can be achieved across a PPP(2) connection is underway as well.
• Automated Installation: Design a self-installing package for the networking software and client applications, ending most hands-on software installations.
• IP Number Assignment: An unavoidable consequence of automated setup is that clients will need quick and easy assignment of IP numbers and easy access to other network information. IP assignment must either become a user-accessible, highly responsive service or the campus network must transition to an automated IP configuration service. In UNM's case, the immediate solution is that IP assignment is moving to the user services area currently responsible for user-id assignments. Plans are underway to automate the service, ultimately providing a direct user interface.
• Software Licensing and Distribution: CIRT's contracting officer and software distribution manager are involved in contractual and distribution issues.
• Pre-configuring the TCP/IP Client Software: Ease of installation and immediate functionality required making modifications to the initialization files of most client software to customize it for our campus environment.
• Plan a Configuration for Pods (Campus Computing Labs): Many students access CIRT TCP/IP services via workstations in our pods. Work to configure these stations, without saving individuals' personal data, including passwords, mail, etc. is ongoing. Likely solutions include requiring users to keep configuration files on a floppy disk or making initialization files read-only and pointing to the floppy drive for default storage.

SERVICE AND PRODUCTIVITY GAINS

Early on I determined that an opportunity existed to improve user service *and* decrease hands-on work by CIRT staff if elements of the proposed suite could be well integrated with the Windows or Macintosh user interface and UNM's networked computing environment.

Products Selected

Let me jump ahead by quickly listing the products selected for our first release of UNM's Windows/PC suite of desktop TCP/IP tools(3):

- TCP/IP stack: Trumpet Winsock ver. 2.0
- Electronic mail: PC-Pine/Winsock, though Simeon and Z-Mail are still under review.
- VT terminal emulator: WinQVT/Net
- TN3270 terminal emulator: QWS3270
- FTP client: WS_FTP
- USENET newsreader: Free Agent
- LPR spooler: Windows LPR Spooler (WLPRSPL)

Selection Issues

Very early in the selection process it became clear that many of our product decisions would not be difficult.

We reviewed several commercial suites(4) and quickly found that all had both very attractive elements and, more importantly, dramatic flaws: High cost per seat; inclusion of too many client applications, including both ones we did not wish to support and others of limited functionality; and either clients we did not desire or lack of support for protocols to which we are committed.

Review of individual products was more valuable. Programmers with long-time access to the Internet at academic and military institutions have produced a number of excellent tools. Some are free to educational institutions, others have free- or shareware versions, with fuller capability available in the licensed version. The FTP and TN3270 clients we selected, WS_FTP and QWS3270, are truly excellent (academic) freeware. WS_FTP has the best interface for FTP we have seen and integrates into Windows very thoroughly. Free Agent, a newsreader, is also free to educational institutions and extremely fast.

We chose to license Trumpet Winsock because it offers equivalent support for both direct network connections and for PPP dial-up connections, including Password Authentication Protocol (PAP) support.

We chose WinQVT/Net as our VT terminal emulator because it is reliable and fast. It's licensed version allows storage of keymaps, linking keymaps to a specific configuration, and re-mapping on the fly. We expect to shortly move to a new version which will support VT-3xx immediately and VT-4xx shortly(5).

LPR spooling to multiple CIRT-operated system printers is offered with Windows LPR Spooler (WLPRSPL) ver. 4.0(6). It fully integrates with the Windows Print Manager and so is available from all Windows applications. It allows for multiple spools to various system printers and can correctly handle the Control-D issue for Postscript printers.

Selection of an electronic mail client has been the most difficult issue. An important, and difficult, decision was made to commit to Interactive Mail Access

Protocol(IMAP) as the mail transfer protocol to be supported by the client software we were selecting. IMAP has important capabilities, but since the protocol is newer, the clients are far less mature that Post Office Protocol (POP) clients.

A decision is still forthcoming at the time of this writing. PC-Pine/Winsock(7) is likely to be chosen for our initial release: It is academic freeware and requires essentially no instruction as Unix Pine is our current supported mailer. However, in its current form, PC-Pine is not a true GUI-based application. Nor does it offer a Macintosh version.

Two other serious contenders, Zmail(8) and Simeon(9), offer Windows, Macintosh and X-Windows version. This is extremely attractive. But for the moment, each has major drawbacks. Z-Mail's current version 3.21 is POP-based and has a limited address book function. Z-Mail's developer has committed to add IMAP support by March 1996. Z-Mail has a really flexible, powerful Windows interface and has long been widely used in corporate settings committed to Internet standard e-mail.

Simeon is a newer product, originally based on the Washington Pine code. It is completely GUI-based and includes direct support for IMSP (Interactive Mail Support Protocol) and X.400 address books, as well as Usenet newsreading via an IMSP server. ESYS is part of a group that also develops enhanced servers. All its products conform to Internet standards.

Each product we examined has been through multiple development generations in the course of our review. I expect that we will review e-mail clients again during the year following initial release of our suite of tools.

It is worth noting that nearly all the developers of these TCP/IP tools have been extremely responsive to our comments on needed changes and improvements as we tested their products.

Automated Installation Produces Significant Gains

Automated installation promises to be one of one of the most productive parts of the entire effort for CIRT. I reviewed the trade press and checked which packages are used in several major commercial applications whose installation flexibility I appreciated. As a result, I selected Stirling Technologies' InstallShield for Windows for our use. InstallShield, which also has Windows NT and OS/2 versions, provides a very rich set of tools to build auto-installation disk sets which will run from Windows(10).

The staff member developing our automated setup decided to build auto-installation packages for two packages we already distribute freely to the university community, MS-Kermit and Clarkson Telnet. While we distribute MS-Kermit from our Help Desk and campus computing labs (pods), Telnet and the underlying networking middleware(11) has historically been installed on all university workstations by staff from my division at CIRT.

Within two weeks a working configuration was being tested during our installation appointments. Although it is not yet finalized, we have already begun to provide the Telnet auto-install disk to departmental computing contacts for their use. By Fall 1995 we expect to be entirely out of the business of installing Telnet for the general university population. Similarly, MS-Kermit will also be auto-installable for those clients who running MS-Windows 3.1 or better. Recovering our time alone represents a huge savings. The ease of installation also means we can afford such extras as routinely setting up Windows icons for Telnet.

Distribution Options

Since an automated install package can be constructed, new distribution methods may be available as well, further lightening our workload. Possibilities being pursued include:

- acting as "wholesaler," producing shrink-wrapped packages with a new disk duplicator and an existing document printer and having the university bookstore sell the suite; and
- creating an "internal" FTP site, accessible only to those with UNM computing accounts, for distribution of this and other site-licensed products, as well as updates and fixes.

Impact of Licensing Issues on Productivity Gains

A significant contracting effort is required because of the number of vendors involved and because of the desired goal to offer the same suite of products for use by all faculty, staff and students on campus, at home and while traveling. Counting and reporting on license numbers is a bookkeeping task we hope to avoid. And, highly varied license arrangements could further complicate the task. Contracts modeled on WordPerfect's, which permits home or portable use as long as no more than one copy is used at a time, resolve most issues for faculty and staff.

Distribution for students is more problematic. As a state university, UNM is limited by the New Mexico constitution's "anti-donation" clause, which does not allow use of state funds for private benefit. Vendors also have a reasonable interest in selling licensed software to former students, once they leave the protection of a university site-license agreement. Approaches that we are taking include seeking overarching site licenses based on a good faith estimate of numbers of likely users and not requiring counting and reporting license numbers. Additionally, we have proposed an arrangement to vendors in which our software distribution staff would publicize the availability to departing students and staff of significantly discounted personal copies of software. Several vendors have expressed interest in such an arrangement.

Site-Specific Implementation

A significant early effort went into modifying the initialization files for the various applications. We created UNM-generic versions to provide common functionality to all the users of our suite of tools. For example, we configured

the e-mail clients to point to the UNM central mail service and, via IMAP, to mail folders stored in each user's Unix filespace. This ensures that users of UNM's mail service see the same collection of mail, regardless of how they connect to the service. Our FTP client has a pre-configured collection of pointers to our own FTP site as well as those of the software vendors whose products we support; finding a new (or out-of-date) printer's driver for WordPerfect or Windows becomes trivial.

I believe the greatest productivity gains for UNM's users of our suite of network tools will come about as it becomes relatively trivial to share files via MIME attachments. Collaborative writing and submitting of homework via e-mail are commonplace with desktop tools in place. Experience with tools implementing MIME led me to recognize the need for an additional supporting component of our suite, file viewers and compression tools.

TESTING AND INTEGRATING SUPPORTING SOFTWARE

Selecting file viewers and compression/decompression utilities became a significant part of the effort. Though not anticipated in the original project definition, daily use of desktop networking capabilities had some important implications:

- users will try to utilize MIME services;
- users need to easily access (view, print and save) files they receive regardless of the originating operating system and application; and
- tools for viewing, printing and saving must integrate with network applications.

HANDLING MIME ATTACHMENTS

Existing Internet standards and clients implementing them now make this a realistic goal. After collecting and configuring many graphics, Postscript and MPEG viewers available on the Internet, I chose to seek a single viewer product that would view and print most graphics, spreadsheet, database and word processor formats from both Macintosh and PC worlds. Configuring an automated installation to seek existing software on each computer and point to it for file viewing is not practical. Nor is adding a large number of individual viewers and keeping them updated as new file types proliferate.

Two commercial viewers are serious contenders: Keyview(12) and Outside In(13). Both can be the recipients of a MIME-pointer from e-mail clients. Both products integrate into the Windows File manager as well. Since Outside In is currently available for both Windows and Macintosh platforms, it is the obvious favorite(14). Site licensing negotiations with both vendors are ongoing at this writing.

HANDLING COMPRESSED FILES

Files of all types are generally accessible on the Internet in compressed form, saving both time and bandwidth in their transmission. Thus it is sensible to provide users with a method of viewing, extracting *and creating* compressed

files that is well-integrated with their working environment. WinZip(15) can serve as the viewer for received compressed files, integrating with e-mail and FTP clients as well as into the Windows File Manager. WinZip allows for viewing compression file contents via a built-in ASCII viewer, applications designated by Windows file associations *and* by a viewer program such as those discussed above. WinZip recently added support for a number of common Unix compressed file types (.GZ, .Z, .TAR, .TAZ, .TGZ) as well as all the major PC compression types. Creation of compressed files is also comprehensively supported. Licensing discussions are underway.

ADDING VALUE FOR USERS, GAUGING COMPUTING CENTER IMPACT

It is worth saying a bit about the work remaining to be done to extend the value of this project and about its impact on network and computing center services. Well-planned, global and/or departmental address books are clearly a service that users will demand. Improvements to LPR spooling are being implemented now, including a canonically named print server to provide lpr queues to all desktop TCP/IP users. Additional TCP/IP applications (such as gopher, WWW, CSO and WAIS clients) will be pre-configured for our environment, and distributed via our FTP sites, thus allowing users to extend their capabilities independently.

After several months of using desktop TCP/IP services, some of the likely impact on the existing servers becomes clear. Huge growth in demand for disk space on the mail server can be expected, due to the increased number of users and ease of use of MIME attachments. On the other hand the rate of increase for use of Unix NFS disk space may slow, as more users routinely move files directly to their local hard disk. Also, use of system printers will be more heavily oriented to specialized services, such as color printing, and high speed printing of large reports and document production. User can easily point light printing from system services to their desktop or local LAN printers via Windows or Macintosh print services. They will rarely choose to use remote lpr printing for such jobs as mail printing.

The result will be a suite of TCP/IP network productivity tools available to the University of New Mexico community that supports future growth and flexibility.

* *

ENDNOTES

1. CIRT abbreviates Computer and Information Resources and Technology, the University of New Mexico computing center that combines academic and administrative computing and user consulting services.

2. CIRT expects to begin offering PPP dial-up service as of Fall 1995, which is indicative of rapidly growing pressure to extend the range of IP networking. The suite of desktop TCP/IP tools under discussion herein will become widely available at the same time.

3. I am giving little attention to the Macintosh suite of tools in this paper because the vast majority of our user workstations are Windows PCs. The Macintosh suite is on a slightly slower development track. Please contact me for fuller information on this topic.

4. An interesting alternative that may now be available for academic institutions is the CREN/BitNet TCP/IP suite that is focused for PPP dial-up and promises to be supported with local dial-up access nationwide. CIRT may explore this as an offering that could be made to UNM alumni.

5. WinQVT/Net is a product of QPC Software. E-mail contact: robin@qpc.com. WinQVT/Net's current release (ver. 3.98.9) offers a mini-suite, comprised of POP mail, command line FTP, a newsreader and lpr spooler along with the VT emulator. These are less attractive than the products we have chosen. WinQVT/Net rel. 4.0, due in August 1995, will separate these components.

6. Windows LPR Spooler is a product of Thomas Heil. E-mail contact: th.heil@kfa-juelich.de

7. PC-Pine and Unix Pine are products of the University of Washington. FTP site: ftp.cac.washington.edu
Newsgroup: comp.mail.pine

8.Z-Mail is a product of the Z-Code Division of NCD. E-mail contact: katie@z-code.com

9. Simeon is a product of ESYS Corporation. Email contact: martyt@edm.isac.ca

10. Packages currently using InstallShield include Novell's WordPerfect and Perfect Office Suite 3.0 and IBM's OS/2 Warp BonusPak. Stirling has modified their license, usually limited to one license per commercially released product, to allow for building setup packages for multiple products released within our university setting. There must be one license owned per developer/programmer.

11. Formerly a packet driver, our underlayer is now Novell's ODI underlayer with a packet driver interface (ODIPKT v.3.0) and the WINPKT shim installed.

12. Keyview is a product of KeyWord. (Interestingly, Keyword was acquired the very week I approached them and is now a division of FTP Software.) E-mail contact: demslie@keyword.com

13. Outside In (for Windows and Macintosh) is a product of Systems Compatibility. It was also acquired during our evaluation period, a sign of the strategic importance such technology is assigned.

14. It should be noted that a Mac version of Keyview is in development.

15. WinZip is a product of Nico Mak Computing. E-mail contact: 70056.241@compuserve.com or support@winzip.com

The University of New Mexico

What's included in Mirada disks, pt. 1

- Trumpet Winsock, ver 2.1f (Windows Sockets TCP/IP stack and PPP dialer)
- WinQVT/Net, ver. 3.98.13 (Telnet VT terminal emulator)
- QWS3270, ver. 3.2e (Telnet 3270 terminal emulator)
- WS_FTP, ver 95.08.26 (FTP client)
- Free Agent, ver 0.99 (Usenet newsreader)

The University of New Mexico

What's included in Mirada disks, pt. 2

- PC-Pine/Winsock, ver. 3.91 (electronic mail)
- Outside In /for Windows, ver. 2.1j (Win/DOS & Mac file viewing & printing utility)
- WinZip, ver. 6.0 (compressed file viewer & compression/decompression utility)

The University of New Mexico

What's included in Mirada's FTP site

- Netscape Navigator, ver. 1.22 (WWW browser, configured for UNM installation)
- additional, optional file viewers for use with Mirada components like Netscape and PC-Pine
- additional, optional Mirada clients for services such as gopher, Midas and CSO
- updates, fixes and additional documentation

The University of New Mexico

How Mirada is licensed

IMPORTANT NOTICE

The Mirada software suite is for the use of students, faculty and staff of the University of New Mexico. It may be used on campus or home PCs that are running Windows and connecting to UNM network services.

You must purchase this software to install it on your PC. You may not install it on multiple PCs, except in the case of UNM departments which have purchased multiple licenses. You may not re-distribute this software to others.

If you (or your UNM department) have not paid for this software, you have an illegal copy.

If you are not affiliated with UNM, you may not use this software.

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Mirada requirements, pt. 1 - PC

- CPU: 386 or above
- RAM: 6MB (8+ MB recommended)
- Hard Disk: 15 megabytes of free hard disk space.
- Operating system: MS- DOS 5.0, Windows 3.1 or Windows for Workgroups 3.11.
- Video: VGA, SVGA (800x600) or better recommended.
- Mouse or other pointing device

Mirada requirements, pt. 2 - connection

- Direct network connection: Active connection via supported network card (3COM or SMC) and software.
  OR
- PPP network connection. Modem, minimum speed 9,600 baud, 14,4 kbps or better recommended connected to a telephone line of reasonably good (audible) quality.

The University of New Mexico

Mirada Help

- consult the online help for each product in the suite
- locally written "readme" files discussing issues we have identified are provided with MIRADA.
- Usenet News: subscribe to the newsgroup unm.mirada
- CIRT's pages WWW, URL: http://www.unm.edu/cirt.html
- CIRT Help Desk, 277-4848, Monday-Friday, 8am-5pm

The University of New Mexico

Mirada Self-Help

- post a suggested change, proposed documentation or a question for response to the Usenet newsgroup unm.mirada
- contact the CIRT Help Desk and ask to speak to the Mirada contact.

The University of New Mexico
COMPUTER AND INFORMATION RESOURCES AND TECHNOLOGY
(CIRT)

Mirada

for Windows 3.1 & Windows for Workgroups 3.11

IMPORTANT NOTICE

The **Mirada** software suite is for the use of students, faculty and staff of the University of New Mexico. It may be used on campus or home personal computers that are running Windows and connecting to UNM network services.

You must purchase this software to install it on your PC. You may not install it on multiple PCs, except in UNM departments which have purchased multiple licenses. You may not re-distribute this software to anyone else. When you leave UNM, you may no longer use it.

If you (or your UNM department) have not paid for this software, you have an illegal copy.

If you are not affiliated with UNM, you may not use this software.

Mirada* will allow you to connect to UNM's campus network services and the Internet. This software is pre-configured to work with either a direct network connection or a PPP (modem) connection. If your PC does not meet the minimum requirements, contact the CIRT Help Desk, 277-4848, to discuss your options.

WHAT'S INCLUDED:

On the **Mirada** disks:

- Trumpet Winsock, ver 2.1f (Windows Sockets TCP/IP stack and PPP dialer)
- WinQVT/Net, ver. 3.98.13 (Telnet VT terminal emulator)
- QWS3270, ver. 3.2e (Telnet 3270 terminal emulator)
- WS_FTP, ver 95.08.26 (FTP client)
- Free Agent, ver 0.99 (Usenet newsreader)
- PC-Pine/Winsock, ver. 3.91 (electronic mail)
- Windows LPR Spooler, ver. 4.0c (printing to CIRT system printers from Windows applications)
- Outside In /for Windows, ver. 2.1j (Win/DOS & Mac file viewing & printing utility)
- WinZip, ver. 6.0 (compressed file viewer & compression/decompression utility)

At the ftp site (UNM_dist.unm.edu, an ftp site only UNM-affiliated folk can reach; get there using WS_FTP):

- Netscape Navigator, ver. 1.22 (WWW browser, configured for UNM installation);
- additional, optional file viewers for use with **Mirada** components like Netscape and PC-Pine;
- additional, optional **Mirada** clients for services such as Gopher, Midas and CSO; and
- updates, fixes and additional documentation, including both electronic copies of manuals for parts of the suite and locally produced documentation.

SYSTEM REQUIREMENTS:

CPU: 386 or above (486 or above recommended)
RAM: 6MB (8+ MB recommended)
Hard Disk: 15 megabytes of free hard disk space
Operating system: MS- DOS 5.0, Windows 3.1 or Windows for Workgroups 3.11
Video: VGA, SVGA (800x600) or better recommended
Mouse or other pointing device
Direct network connection: Active connection via supported network card (3COM or SMC) and software
OR PPP network connection. Modem, minimum speed 9600 baud, 14.4 kbps or better recommended connected to a telephone line of reasonably good (audible) quality

PRE-PLANNING: Before you run this software you will need to:

1. **Backup your critical software and data files.**

2.a. with a direct network connection: Be sure you have an active network connection by using Telnet to log in to a CIRT Unix machine. (If you do not have an active connection, call the CIRT Help Desk, Monday-Friday, 8am-5pm for assistance.)

OR

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*Mirada is a Spanish word meaning a look or a view.

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2.b. with a PPP connection: Be sure you have a modem that can successfully dial and connect to one of CIRT's normal (ASCII) dialup lines, 277-9990 through 277-9994.

INSTALLING MIRADA:

Part A (the disk set): From Windows Program Manager (not the MS-DOS prompt):

1. click on File
2. click on Run...
3. enter a:setup or b:setup depending upon where the diskette is.
   (for PPP modem connection, enter a:setup ppp or b:setup ppp)

After the install is completed, close Windows. Reboot your PC – preferably by turning it off and back on.

Part B (Netscape Navigator & other items on the ftp site, UNM_dist.unm.edu): From Windows Program Manager:

1. in the Mirada program group, double-click on . When WS_FTP, opens for the first time, it will point to the Mirada distribution site. Using your mouse or the tab key, move the cursor to the box titled User ID;type your CIRT Unix login-id. Click on the Save button to store this information.
2. click the OK button to connect to the Mirada site. When the password box appears on your screen, type your CIRT Unix password and click OK. After a moment, you are connected. The left half of the FTP window displays information frm your PC, a directory list in the upper box and a file list in the lower box. The right half displays directories and files for the remote computer to which you are connected.
3. retrieve Netscape Navigator for Windows: Double click on the subdirectory named PC in the upper right hand box. A new list of files will appear in the lower right box. Note the subdirectory listed on your PC, which should be C:\TEMP. If not, click on ChgDir, type C:\TEMP in the pop-up box and click OK. Double click on n16e122.exe to transfer Netscape Navigator to your PC. Click on Exit to close your connection and quit FTP.
4. open an MS-DOS session on your PC. At the prompt type CD \TEMP [Enter].
5. Type n16e122 [Enter] at the DOS prompt to uncompress Netscape. Type exit [Enter] to close your MS-DOS session.
6. From Windows Program Manager, click on File
7. click on Run...
8. click on Browse... , select C:\TEMP. Select setup.exe and click OK. Click OK again in the Run box to start the Netscape installation. Follow the directions on your screen.

IF PROBLEMS OCCUR/GETTING HELP: If you have problems while installing or using the Mirada software suite through Windows, you can check several sources of information for help, information and updates:

- the online help for each product in the suite
- locally written "readme" files, discussing issues we have identified, are provided with Mirada
- Usenet News: subscribe (use the Free Agent newsreader) to the newsgroup unm_mirada
- CIRT's pages on the UNM WWW site (URL: http://www.unm.edu/)
- CIRT Help Desk, 277-4848, Monday-Friday, 8am-5pm

Also, we need your help: Producing and supporting a suite of network applications is a complex task that is not finished when the first release becomes available. If you have suggestions for improvements or additional features which should be documented, you can help by:

- posting a suggested change, proposed documentation or a question for response to the Usenet newsgroup unm_mirada
- contacting the CIRT Help Desk and asking to speak to the MIRADA contact.

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MIRADA

FOR WINDOWS 3.1 & WINDOWS FOR WORKGROUPS 3.11

Mirada is an integrated collection of Internet tools that will simplify and streamline the use of network services, including electronic mail and transferring files between desktop machines and shared systems. Following is a brief description of the programs that comprise **Mirada** and their capabilities.

AUTO-INSTALLATION: **Mirada** has been set up to install automatically on your Windows PC, similarly to other Windows software. Read the installation instruction sheet for details. If you have Windows 95, there is partial support. Contact the CIRT Help Desk, 277-4848, for details or check for CIRT's Windows 95 and **Mirada** Web pages (the CIRT Help Desk's Web URL is http://www.unm.edu/~hdesk).

TCP/IP STACK & PPP DIALER: Trumpet Winsock provides a TCP/IP stack that supports both a direct network connection and a PPP (modem) connection.

ELECTRONIC MAIL: PC-Pine/Winsock offers an interface very similar to PINE on UNIX. On your own desktop, this program allows you to attach and read files that are stored on your hard disk and diskettes into mail messages without having to first upload the files to a shared system. Desktop mail can easily save incoming messages or attachments to your local hard disk, and it offers more choices for editors. You may use any Windows text editor or word processor as a mail editor. Mail attachments can be viewed with the integrated viewer (see Viewer, below).

FTP: WS-FTP connects to any FTP site on the Internet with a menu-based interface similar to Windows File Manager. WS-FTP allows files to be transferred between FTP sites and your desktop computer without first transferring files to your UNIX account. It also permits text information such as indexes, readme files, etc. to be viewed before downloading large files and it greatly simplifies navigating through an FTP site. FTP sites helpful to the UNM community are already loaded. There are pointers to the **Mirada** site for extensions and upgrades (including Netscape) and valuable technical support sites, such as the WordPerfect and Microsoft sites.

FILE COMPRESSION: WinZip can compress and decompress all common UNIX and PC compressed file types. A built-in viewer allows you to examine text files within compressed files before you decompress them. A connection to Quick Views Plus (see Viewer, below) allows viewing nearly any other compressed file. Connections to popular anti-virus software, including F-PROT (CIRT's supported virus checker), allow checking for viruses before decompressing software.

TERMINAL EMULATION: WinQVT/Net, a Vtxxx terminal emulator for connecting to UNIX and VMS systems, permits key-mapping customization and use of local Windows features, such as cut and paste abilities across platforms (from a shared system to your desktop, for example). QWS3270 is a TN3270 terminal emulator for connecting to IBM mainframe environments (such as UNMMVS and UNMVMA).

NEWS READER: Free Agent is a Usenet News reader which opens three windows (group list, thread and article list, and article viewer) simultaneously. It has point and click functions and the ability to decompress uuencoded files and invoke an associated program for viewing files.

LPR SPOOLER: Windows LPR spooler allows printing files directly from a Windows application to a CIRT system printer on the network, such as CIRT's Xerox 4700II Color Document printer or high speed PostScript

printer. Remember there are fees for color printing!

VIEWER: Quick Views Plus (formerly Outside In) handles both Mac and PC file types and a wide variety of file types within word processing, spreadsheet, graphics and database software. Files can be viewed and printed from the desktop even if you don't own the application which created the document. Windows cut and paste works, allowing movement of data to your own documents.

WEB BROWSER: Netscape Navigator, preconfigured for UNM's WWW site and to use the Quick Views Plus viewers, is waiting for you on the **Mirada** FTP site, ready to install.

AND MORE: Keep checking the **Mirada** FTP site for product updates, bug fixes, extensions to the suite, added documentation, product upgrades and announcement of **Mirada** for Windows 95 and Macintosh.